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IMPORTANT DATES:

- Inauguration Day
20 January 2009
- Surgeon General Day
27 February 2009
- NEHC Conference
20-26 March 2009
- 7th Int'l Symposium on Avian Influenza
5-8 April 2009
- Society for Epi Research
23-26 June 2009
- FHP Conference
14-21 August 2009

Naval Health Research Center Quarterly Update

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Naples Birth Defects Study

Uncollected trash and trash fires are an ongoing health concern in the area of Naples, Italy. Recent media attention has further raised the public's awareness of the



situation, citing Italian Government studies that indicate long-term illegal dumping of hazardous wastes in the region may be linked to increased cancer risk and birth deformities. As part of efforts to assess the public health risk to US military personnel and their families living in the region, the DoD Birth and Infant Health Registry, located at

the Naval Health Research Center, was asked to conduct a study of birth defects among infants who gestated in and around Naples.

This study included infants born to active-duty military women and spouses of active-duty military in the calendar years 2000 through 2005 where the mother showed continuous enrollment to an overseas Navy Military Treatment Facility (MTF) or Clinic (under the same parent DMIS) for the month prior to conception and the following three months of pregnancy. The final cohort included 8,678 infants. An infant was considered exposed if all four months of the mother's enrollment were at an MTF or clinic in the Naples area (Naval Hospital Naples and the clinics in Gaeta and Capodichino), regardless of the infant's birth location.

Analyses included descriptive investigations of demographic and occupational

(Continued on page 3)

2008 Wilkins Award for Excellence



The 2008 Wilkins Award for the best publication goes to LT Marcus Taylor, Sausen K, Potterat E, Mujica-Parodi L, Reis J, Markham A, Padilla G, and Taylor D, for Stressful Military Training:

Endocrine Reactivity, Performance, and Psychological Impact. Aviation, Space & Environmental Medicine.

This award is in honor of the first Scientific Director of NHRC, Dr. Walter L. Wilkins. Dr. Wilkins is remembered for his skills as a leader and mentor. He had high goals and aspirations for NHRC and helped many young scientists develop their full potential. Dr. Wilkins considered publication in refereed journals a test of the quality of our work. During and immediately after his

tenure as Scientific Director the percentage of papers published was more than 80%. This award is a reminder of this high standard.

The finalists were:

- Smith T, Zomorski M, Smith B, Riddle J, LeardMann C, Wells T, Engle C, Hoge C, Adkins J, Blaze D for the Millennium Cohort Study Team. The physical and mental health of a large military cohort: baseline functional health status of the Millennium Cohort. BMC Public Health.
- Wade A, Dye J, Mohrle C, Galarneau M. Head, Face, and Neck Injuries During Operation Iraqi Freedom II: Results from the US Navy-Marine Corps Combat Trauma Registry. Journal of Trauma.
- Walker J, Zouris J, Galarneau M. Descriptive Summary of Patients Seen at the Surgical Companies during Operation Iraqi Freedom-1. Military Medicine.

Recent Publications & Presentations

Booth-Kewley S, Larson GE, Highfill-McRoy RM. Psychosocial Predictors of Return to Duty Among Marine Recruits With Musculoskeletal Injuries. *MILITARY MEDICINE*, 174, 2:139, 2009.

Bukowinski A, Ryan M, Slymen D, Sevick C, Alcaraz J, Smith T. Haemangiomas and associated congenital malformations in a large population-based sample of infants. *Paediatric & Perinatal Epidemiology* 2008 Nov;22(6):520-9

Broderick MP, Hansen CJ, Russell KL. Exploration of the effectiveness of social distancing on respiratory pathogen transmission implicates environmental contributions. *The Journal of Infectious Diseases* 2008 Nov 15;198(10):1420-6

Hill M, Nix R, Hopkins C, Konoske P, Pang G. Using Modeling to Predict Medical Requirements for Special Operations Missions. *The Journal of Special Operations Medicine* Vol. 8, Edition 4, Fall 08.

Jacobson IG, Smith TC, Smith B, Keel PK, Amoroso PJ, Wells TS, Bathalon GP, Boyko EJ, Ryan MAK for the Millennium Cohort Study Team. Disordered eating and weight changes after deployment: longitudinal assessment of a large US military cohort. *American Journal of Epidemiology*, 2009 Feb;169(4):415-27.

Kewley, Dr. Stephanie, Highfill-McRoy, Robyn presented "Warfighter Status Survey Results" to NHRC science investigators on 23 October 2008. Stigma, misconduct and interesting and unexpected risk factors of PTSD were presented.

Smith B, Ryan MA, Wingard DL, Patterson TL, Slymen DJ, Macera CA; Millennium Cohort Study Team. Cigarette smoking and military deployment: a prospective evaluation. *Am J Prev Med*. 2008 Dec;35(6):539-46. Epub 2008 Oct 8.

Smith T, Wingard D, Ryan M, Kritz-Silverstein D, Slymen D, Sallis J. PTSD Prevalence, associated exposures, and functional health outcomes in a large, population-based military cohort. *Public Health Rep*, 2008; January 2009;124:90-102.

Welch KE, LeardMann CA, Jacobson IG, Speigle SJ, Smith B, Smith TC, Ryan MAK, for the Millennium Cohort Study Team. Postcards encourage participant updates. *Epidemiology*, 2009 Mar;20(2):313-4.



NHRC's 50th Anniversary

Mark your calendar for the command's 50th anniversary to be held on 24 July 2009. Invitations will be sent to all who ever worked at NPRU / NHRC from 1959 to present. More details forthcoming.



RPM... New Research Management Tool!

NHRC has launched RPM (Research Project Manager), which provides investigators and management with current information on all work units and associated protocols in a simple and easy to use format. Project and protocol summaries, assigned personnel, and associated products (paper, briefings, quad charts) are maintained in a searchable database, making the gathering of information on projects and project status simple and straightforward. Responding to "taskers" from higher authority, or simply providing information about a particular project now takes minutes and does not require action on the part of investigators or department heads. RPM replaces APRS (Automated Project Reporting System) which became obsolete when some legacy reporting requirements were streamlined and eliminated. RPM now contains roughly 30 data fields, compared to 300+ APRS, and takes on average only 10 minutes to complete an entirely new work unit entry, compared to 30-45 minutes for the older APRS system.

Features: Products are automatically pulled into the work unit from the products database. This shows up to the 5

most recent products produced. The products are weighted, so publications will always be first. Funding is automatically pulled from FPS data and rolled up to the nearest thousand \$. There is also space to estimate funding over the next three years. Key personnel and time percentages for each project can be entered by the PI. This makes a quick and easy snapshot of who's doing what in the department. Protocols have been added to the work units. Enter notes on the progress and use this information to put together the annual continuing review report to IRB. Sub-projects have been added to the protocol section. Any projects or specific studies within a protocol can be summarized in a short paragraph and quickly sent to the CO and SD by email. The summary page button at the top of any screen will produce a one page overview of everything in that section of the project. The summary overview pages are included in the bi-annual scientific review with management.

Naples Birth Defects (cont.)



characteristics stratified by maternal enrollment location. Preliminary univariate analyses, including chi-square and odds-ratio were performed to assess the significance of associations

between the outcome of interest and exposure. An exploratory model analysis was completed to assess regression diagnostics, significant associations, and collinearity, while simultaneously adjusting for all other variables in the model. Multivariable logistic regression models were used to estimate the adjusted odds ratios (ORs) and 95% confidence intervals (CIs) of birth defects among infants with the exposure of concern. All statistical analyses were performed using SAS software (Version 9.2, SAS Institute, Inc., Cary, NC). Among the 8,678 infants, 894 showed first trimester exposure to the Naples area and 7,784 showed first trimester exposure to other overseas Navy enrollment sites. The overall rate of birth defects in the Navy is 3.6 per hundred births for the study time period. The rate of birth defects for infants exposed to Naples was 3.13 per hundred births vs. 2.35 per hundred births for other Navy overseas sites. The unadjusted odds ratio between the two was 1.34 but was not statistically significant (95% CI: 0.90 – 2.01). After adjusting for birth plurality, infant gender, maternal age, sponsor race/ethnicity, mater-

nal military status, sponsor pay grade, sponsor duty occupation, and sponsor duty status the adjusted odds ratio was 1.36 and was not statistically significant (95% CI: 0.90 – 2.06).

Other associated factors included increased odds of birth defects in military mothers when compared to dependent mothers, and advanced maternal age (≥ 35 years). Sponsor's race/ethnicity of Black, not Hispanic vs. White, not Hispanic was significantly associated with decreased odds of a major birth defect.

Overall, these analyses do not suggest a statistically significant increase in the birth defect rate of infants who gestate in the first trimester of their development in the Naples area compared to infants who gestate in the first trimester of their development in other overseas Navy areas. Although reassuring, additional surveillance in the region should continue in order to further evaluate the effect of specific exposures potentially influenced by the trash situation such as air and water. Identifying the individuals' various exposure levels could also provide additional insight into this potential environmental problem affecting a specific subset of the military population. As always, the DoD Birth and Infant Health Registry will be standing by to assist in these future investigations.



CTR 's New Name: EMED

The Medical Modeling, Simulation and Mission Support department's Navy-Marine Corps Combat Trauma Registry has a new name. It's now called the Expeditionary Medical Encounter Database (EMED). The name change was inspired by confusion between the CTR and the Joint Theater Trauma Record. The new EMED name more appropriately refers to all encounters in theater (to include disease and non-battle injury data)



Science Seminars

Dr. Keith Horsley, Australian Centre for Military and Veteran Health, presented "The Spanish Influenza in Australia - Lessons for the next Pandemic" to NHRC science investigators on 12 January 2009. Dr. Horsley has researched the health of Australia's veteran community, particularly as it relates to cancer incidence and mortality.

Dr. Bonnie LaFleur, University of Arizona, presented "Statistical Issues in Biomarker Development" to NHRC science investigators on 26 January 2009. The presentation highlighted current approaches in experimental design and evaluation used in biomedical research studies.

Dr. David Gerdt, president of Empirical Technologies, presented "New Physiological Monitors" to NHRC science investigators on 30 October 2008. CareTaker and HRWatch data theory of both systems were presented along with interesting potential applications.

Dr. James Bauman, US Olympic Training Center, Chula Vista, spoke to NHRC science investigators on 26 February 2009 about his experiences over the last 10 years in working with some of the world's most elite athletes. Some of the psychological skills strategies he teaches athletes may be relevant to our modern warfighters.

Lean Six Sigma

What is Lean Six Sigma (LSS)?

Term of the Week: **Black Belt**

Team Leaders responsible for overseeing and implementing process improvement projects. Black Belts are knowledgeable and skilled in the use of continuous process improvement and Lean Six Sigma methodology and tools. A LSS Black Belt has completed an intensive four week training course recognized by the American Society of Quality. They have demonstrated mastery of the LSS subject matter through application to actual project(s) and successful completion of a certification examination. LSS Black Belts mentor and Coach Green Belts and receive

coaching and support from Master Black Belts who are LSS subject matter experts who have in excess of five years of LSS experience. Navy Medicine Support Command is responsible for managing the Navy Medicine LSS program and conducts three certified Black Belt training courses each year.

Get in the Know... complete the "Lean Six Sigma White Belt" course on Navy e-Learning. Go to NKO, Navy e-Learning and select course #NETC-LSSWB-1.0

Get Involved... be a part of better business practice; ask your leadership how you can get involved in a process improvement project.

Highlights

21-22 Jan 2009 - Dept 161 hosted a meeting of the members of the FHD BOD Global Naval Expeditionary Care System (GNECS) Working Group at NHRC in San Diego. The working group co-chairs are CAPT Stiles and CAPT Hathaway and the members include the Force TYCOM Surgeons. The primary purpose of the meeting was to facilitate efforts to develop appropriate background and scenario development for the modeling and simulation portion of the Functional Needs Assessment section of the GNECS Capability Based Assessment (CBA).

2 Feb, RADM Richard Vinci and Larry Coffey (NMSC PAO) visited NHRC. They were briefed on the BSL 2 & 3

update, GNECS update, and BHNAS.

11 Feb, CAPT Kerry Thompson and Dr. Karl Van Orden briefed Brigadier General Loree Sutton, Director, Defense Center of Excellence for Psychological Health and Traumatic Brain Injury, and staff.

19 Feb, A House Armed Services Committee Professional Staff Member delegation visited NHRC. The Professional Staff included: Mr. Dave Kildee, Ms. Jeanette James, Mr. Joe Hicken, and Ms. Sasha Rogers. They were accompanied by CDR Glen Diehl, a SECNAV Office of Legislative Affairs representative. The delegation was given a Command Overview by the CO, TD, and SD.

World AIDS Day—1 December 2008



WORLD AIDS DAY COMMUNICATION ACTIVITIES (UPDATE) – Dr. Anne Thomas, a research scientist at NHRC, was interviewed by ASD(HA) Communications Directorate personnel for a DOD internal news stories to support marketing the DOD HIV/AIDS Prevention Program (DHAPP). The story can be viewed at:

<http://www.health.mil/Press/Release.aspx?ID=447>

DoD Contribution to the Global Fight Against AIDS

The Department of Defense HIV/AIDS Prevention Program (DHAPP), at The Naval Health Research Center in Point Loma, San Diego, is the executive agent for DoD Global HIV/AIDS Programs. DoD is an implementing agency along with USAID, HHS/CDC and Peace Corps in support of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). Walter Reed Army Institute of Research (WRAIR) scientists also collaborate with DHAPP in HIV and AIDS research.

DHAPP engages in international military cooperation of HIV/AIDS prevention, education, care, and treatment. In addition, DHAPP supports HIV/AIDS strategic communication, human capacity development, and

program and policy development in host militaries and civilian communities in 71 countries around the world. These activities are accomplished through direct military-to-military assistance, support to non-governmental organizations and universities, and collaboration with other U.S. Government (USG) agencies in country. DHAPP also supports a wide range of military-specific HIV prevention programs, infrastructure development and support (including laboratory, clinic and hospital facility renovation, equipment, and training), and treatment and care activities.

Moving Forward in the Global Fight Against AIDS

DHAPP and the other PEPFAR-funded USG agencies support capacity development to achieve and sustain success for years to come in the battle against HIV/AIDS. One way in which the agencies achieve this goal together is by leveraging each agency's technical expertise and strengths.

We all try and use the best of what everyone is doing. Each country is unique in terms of what is available on the ground at the U.S. government agency level and with the host military. Each agency has different capabilities, we try to synergize and leverage as much as possible, said Dr. Anne Thomas.

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Command Corner



CAPT Kerry Thompson
Commanding Officer

Department of Respiratory Disease Research Doc Goes to OIF

We recently welcomed back to NHRC CDR Dennis Faix MC USN, who left the San Diego laboratory in January 2008 to practice preventive medicine in support of Operation Iraqi Freedom as an individual augmentee to the Army's 62nd Medical Brigade,

Camp Victory, Baghdad, Iraq in their mission to maximize operational readiness, provide world class health care to coalition personnel, and facilitate the re-establishment of a robust Iraqi healthcare system. Please welcome him back and drop by his office for a visit to glean more from his experience. I asked him to write up a short note to share with you about his experience. The following is from CDR Faix himself. - CAPT K Thompson

The day to day of the preventive medicine officer (PMO) at NHRC is surveillance and epidemiology in support of DoD populations, specifically populations at risk of transmissible diseases. This translates very well to the job of the PMO in Iraq, which is to use surveillance and epidemiology to track disease trends in coalition personnel and make recommendations to mitigate problems as they arise or, better yet, before they arise. For example at NHRC we track respiratory disease rates and specific pathogens (influenza and adenovirus) quite

closely in the military recruit populations. At Camp Victory, Baghdad, I was involved in tracing disease rates among coalition forces all over Iraq, and when more specific pathogen identification was needed, coordinating with laboratory professionals in and out of theater to establish diagnoses and develop mitigation strategies. The work in Iraq was a bit more varied than the respiratory pathogens of NHRC; diarrheal pathogens, chicken pox, measles, Q fever, trauma and chronic disease are all important to troop readiness in Iraq. Additionally, environmental concerns are paramount; one of my main duties was to coordinate the theater program for performing Occupational Environmental Health Site Assessments (OEHSAs)--detailed, scientific reports of the potential occupational and environmental health risks present in an operational area. OEHSAs are integral to the DoD's ability to maintain operational readiness and the publics' confidence in our ability to protect troops.

Performing this work among a new group of Army colleagues had its challenges--the concepts of preventive medicine are the same from service to service, but the language of the Army and the Navy/Marine communities are different. Fortunately, the Navy--somewhat presciently it seems--sent me to Preventive Medicine residency at the Walter Reed Army Institute of Research where I learned to speak "HOOHAH". And, the surveillance work at NHRC is truly tri-service (and Coast Guard!), allowing me to maintain my multi-lingual/multi-service preventive medicine vocabulary--great preparation for a great tour in Iraq! It was a great opportunity to serve and even better to be back serving at NHRC. - CDR D Faix

